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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/327,713	06/08/1999	KIMIIHIKO NISHIOKA	PM260332	5810
909 7590 06/14/2007 PILLSBURY WINTHROP SHAW PITTMAN, LLP P.O. BOX 10500 MCLEAN, VA 22102			EXAMINER CHEN, LUCY P	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 06/14/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/327,713

Applicant(s)

NISHIOKA, KIMIHIKO

Examiner

Lucy P. Chien

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 40-42, 48, 49, 84, 86, 88, 92-98, 116, 117 and 126 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 40-42, 48, 49, 84, 86, 88, 92-98, 116, 117 and 126 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 June 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claim 40-42,48,49,84,86,88,92-98,117,126 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 40 is rejected under 35 U.S.C. 102(b) as being anticipated by Smither (US 5004319).

Smither discloses in figure 1, 5a or b and 9 a variable optical-property mirror unit comprising (the device interacts with photons (which are infrared light also silicon crystals reflect infrared light (Column 5, Rows 50-55)) in a reflective manner): a variable optical-property mirror 71, and a driving circuit constructed and arranged to drive the variable optical-property mirror, wherein the variable optical-property mirror is arranged to be decentered from the light incident side optical axis, wherein the variable optical-property mirror itself is made physically changeable by the driving circuit (the computer shown as 124 is indicated as controlling the elements of the driving matrix of thin film resistors by electrical elements, and hence must inherently be a drive circuit), wherein a shape of the reflecting surface of said variable optical-property mirror unit is variable, as the shape is indicated as changing (deformable) (see column 2, lines 39-50). The reflecting surface of the variable optical-property mirror contributes to forming a two-

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dimensional image (the relationship "contributes" is intended use and further only requires tangential association with the forming of a two dimensional image, and as it therefore met by essentially anything. Here one could use the device to create a two dimensional image of the diffracted photons).

Claim 117 is rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al (US 5097352).

Takahashi et al discloses (Fig. 8) a plurality (plurality of liquid crystal shown Fig. 21a can be included in Fig. 8 liquid crystal (1)) of variable optical-property element each having a variable optical power (driving circuit p1, p2) an optical element having a rotationally asymmetric optical surface (27) wherein the plurality of variable optical property element (1) are arranged along a single traveling path of rays, wherein the variable optical-property element (1) and the optical element (27) are decentered from one another (shown on the one side of the prism) and wherein the rotationally asymmetric optical surface (27) is a smooth surface (shown 27 flat line) directed towards a light-incident side.

Claim 126 is rejected under 35 U.S.C. 102(b) as being anticipated by Smither (US 5004319).

Smither discloses (Fig. 1 and Fig. 9) a transparent optical element (24) having an entrance surface (15) and an exit surface (20,21) that is different from the entrance surface (its exiting a different side of the focal circle); and a reflection type variable

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optical property element (10 and Fig. 9 shows It as 126) having a variable optical power (by the computer 124), the reflection type variable optical property element (10) arranged integrally with the transparent optical element (24) wherein the transparent optical element and the reflection type variable optical property element are configured such that light enters the optical element through the entrance surface (15), where is reflected at the reflection type variable optical property element (10), and then exits out of the transparent optical element through the exit surface (20,21) wherein at least one of the entrance surface (15) and the exit surface (21) of the transparent optical element (24) is a curved surface.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 40,49,84,92-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 5097352) in view of Hochstrate (US 4196973).

Regarding claim 40,49,94.

Takahashi discloses (Fig. 14) a variable optical-property mirror (34) and a driving circuit that drives the variable optical-property mirror (P,SW), wherein the variable optical-property mirror (34) is arranged to be decentered from a light incident-side optical axis (starting from M and follow the arrow is the light incident side) and wherein

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the variable optical-property mirror (34) that is deformable (being able to be bent as shown in Fig. 16). Regarding claim 49, a variable optical mirror (34) a driving circuit that drives the variable optical-property mirror (P, SW) and an optical element having a light deflecting function (15) and disposed before the variable optical-property mirror (34) in a single traveling path of rays (starting from M and shown with an arrow), wherein a shape of a reflecting surface of the variable optical-property mirror is deformable (as shown in Fig. 16 element (34)) wherein the variable optical-property mirror (34) is arranged to be decentered (tilted so therefore decentered) from a light incident-side optical axis, and wherein the optical element (15) has a rotationally asymmetric surface having a shape that defines only one plane of symmetry or no plane of symmetry.

Takahashi et al does not disclose the variable optical property element (LCD) is a reflection-type element, which includes a reflecting surface.

Hochstrate discloses using a transfective liquid crystal, which operates as a reflective and transmissive mode for significantly enhancing the optical viewability (abstract).

It would have been obvious to one of ordinary skill in the art to modify Takahashi et al's liquid crystal variable optical property element to include Hochstrate's reflection type variable optical element (liquid crystal) motivated by the desire to significantly enhancing the optical viewability (abstract).

Regarding claim 92,

In addition to Takahashi et al and Hochstrate as disclosed above, Takahashi et al discloses (Fig. 14) discloses an image sensor (23).

Regarding claim 93.

In addition to Takahashi et al and Hochstrate as disclosed above, Takahashi discloses (Fig. 14) wherein the optical system forms an image surface on an exit side (past element 23) and wherein the optical system further comprises an optical element (1) arranged between the image surface (23) and the reflecting surface of the variable optical property mirror (34).

Claim 41,42,84,86,88,98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 5097352) in view of Kimura et al (US 6166866).

Regarding Claim 41,42,48,84,86,88,98.

Takahashi et al discloses (Figure 8) variable optical-property element is a reflective liquid crystal (1) having light deflecting function and has a driving circuit wherein the variable optical-property element (1) and an asymmetric prism (27) are provided on an optical element image sensor (23) and are arranged along a single traveling path of rays (shown with line and arrow through elements) and wherein the variable optical-property element (1) is arranged to be decentered from an optical axis of the optical system (Fig. 8 shows entire optical system). Regarding Claim 48, The variable optical property element (1) and the image sensor (23) is disposed on a surface of the asymmetric prism (27), which has reflecting surfaces (26).

Takahashi et al does not disclose and the asymmetric prism that is reflective (27) to be a plurality of rotationally asymmetric curved surfaces.

Kimura et al discloses (Figure 1) using a plurality of rotationally asymmetric curved surfaces prism that is reflective (10)(column 4, rows 29-40).

It would have been obvious to one of ordinary skill in the art to modify Takahashi et al's asymmetric prism to include a plurality of rotationally asymmetric curved surfaces taught by Kimura et al motivated by the desire to provide a highly accurate optical system (column 4, rows 29-40).

Claim 40,86,95-97 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 5097352) and of Kimura et al (US 6166866) in view of Hochstrate (US 4196973).

Regarding Claim 40,86,96,97.

Takahashi et al and Kimura et al disclose everything as disclosed above.

Takahashi et al and Kimura et al do not disclose the variable optical property element (LCD) is a reflection-type element.

Hochstrate discloses using a transfective liquid crystal, which operates as a reflective and transmissive mode for significantly enhancing the optical viewability (abstract).

It would have been obvious to one of ordinary skill in the art to modify Takahashi et al and Kimura et al's liquid crystal variable optical property element to include Hochstrate's reflection type variable optical element (liquid crystal) motivated by the desire to significantly enhancing the optical view ability (abstract).

Regarding Claim 95.

In addition to Takahashi et al and Kimura et al as disclosed above, Takahashi et al (Fig. 8) discloses the reflecting surface is tilted as shown (the ray is hitting the hypotenuse side of the prism 27 and is reflected towards 26).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy P. Chien whose telephone number is 571-272-8579. The examiner can normally be reached on M-F 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lucy P Chien
Examiner
Art Unit 2871


ANDREW SCHECHTER
PRIMARY EXAMINER